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SCOPING REVIEW

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EFFICACY OF AGNIKARMA IN THE MANAGEMENT OF GRIDHRASI (SCIATICA) - A SCOPING REVIEW UPANISHAD N. UPADHYE*1, VAIDYA VASANT PATIL²

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ABSTRACT:

Background: Low back pain and sciatica is major cause of morbidity throughout the world. Pain and distribution of pain in sciatica is lumbar or sacral roots which arises from lumbar spine. All the *Acharyas* have explained *Gridhrasi* as one of the *Vatavyadhi*. Acharya *Sushruta* explained *Gridhrasi* as *Vriddhita Vata* which is invading the *kandaras* of the *Parshni and Anguli* (ankles and toes) produces *ksepa* (pain and inability to extend) in the thighs, this diseases known as *Gridhrasi*. By looking in to the above symptoms said by *Acharya's* it becomes clear that *Acharya's* explained the disease which can be correlated to Sciatica. Even though many studies have been done for this disease but it is still relevant to explore other treatment modalities. Aims: To review the articles published on Management of *Gridhrasi* through the *Agnikarma* on online portals for further research and improvising the healthcare practice. Methods and Materials: The articles are screened from Google Scholar, PubMed and other online published articles from all the years. The terms used for the search are *Gridhrasi*, *Agnikarma*, Sciatica. Conclusion: *Gridhrasi* can be treated by *Agnikarma*, which may be cured completely or in some subjects at least moderate relief can be achieved.

Keywords: Sciatica, Gridhrasi, Agnikarma, Ayurvedic Cautery Treatment

INTRODUCTION:

To achieve the goal of life i.e. Dharma, Artha, Kama and Moksha the person has to be in the good shape and being the living organism, humans always suffer with one or the other ailments which causes the hindrance to achieve the purpose of living, among them pain is the primary cause. With the different kinds of pain, the low back pain plays an important role to deviate the person to achieve his purpose of life. Different kinds of factors play important role in causing the low back pain among them are sedentary lifestyle, jerky movements, sports injuries, improper sitting and sleeping postures, spinal cord deformities, different disc related abnormalities, other rare but important disorders like spinal tumor, malignant disease in the pelvis and tuberculosis of the vertebral bodies, may lead to low back pain which is when neglected may turn to Gridhrasi (Sciatica).

All the Acharyas have explained Gridhrasi as one of the Vatavyadhi. Acharya Sushruta explained Gridhrasi as Vriddhita Vata which is invading the kandaras of the Parshni and Anguli(ankles and toes) produces ksepa (pain and inability to extend) in the thighs, this disease is known as Grdhrasi.[1].

Acharya Charaka explained as the Prakupita Vata producing Sthambha, Ruk and Toda in Kati, Sphik, Uru, Jaanu, Jangha, and Paada in a series leading to disease known as Gridhrasi. If this Gridhrasi is due to Vata and Vata-Kapha then it produces Tandra, Gaurava and Aruchi along with above said symptoms.[2].

Acharya *Vagbhata* explained as When the *kandara*(muscle) of the leg which goes from the *Parshni* to the *Anguli*, gets afflicted by aggravated *Vata dosha* and stops the action of *Utkshepana* and *apakshepana*(lifting the leg) then it is called *'Gridhsi'*.[3].

By looking in to the above symptoms said by *Acharya's* it becomes clear that *Acharya's* explained the disease which can be correlated to Sciatica.

By the term Lumbar spondylosis, pain in the distributor of the lumbar or sacral roots known as 'sciatica' is meant by the pain in the distribution of the sciatic nerve or its component nerve roots, a sharp or dull constant pain in the buttock, spreading down the posterior or lateral aspects of the thigh and leg to the dorsum or lateral aspect of the foot. Pain is aggravated by coughing, straining, sneezing or jolting of the spine but may be relieved by lying down.[4].

Treatment modalities have been prescribed for the treatment of sciatica in conventional medicine are symptomatic management with NSAID's, sedatives, physiotherapy and lastly surgical intervention.

In Ayurveda many treatment procedures are explained among them are Aushada sevana, Snehana, Swedana, Basti Chikitsa, Agnikarma, Rakta Mokshana etc., have been explained for the treatment of Gridhrasi, so it becomes very important to study the effect of Agnikarma in the management of Gridhrasi.

Agnikarma

"Agninakritwa yat karma, agni- sambaandhi va yatkarma tad agnikarma" (Dalhan) i.e. Agnikarma is defined as the burning/Dahana of Shareera Bhaaga with red hot Dahanopakarana like Shalaka (prepared with copper, silver, gold, iron etc.).

The term "Agni chikitsa", "dagdha chikitsa", "vahni chikitsa", "vahnidagdha", "dagdhakrma", "dahankarma" etc. are generally used as synonyms of Agnikarma mentioned in various places of Ayurvedic literature.

Acharya Sushruta described the Agnikarma chikitsa as superior treatment modality than ksharakarma. The diseases treated by Agni-karma usually do not recur

again and also make possible to cure the diseases which are not cured by Bheshai (different Aushada Dravya, kshara (alkalies)) and Shastra Karma (various surgical intervention). The superiority of Agnikarma is illustrated in the chapter of Agnikarma of Sushruta samhita of Sutra Sthana 12th chapter, 3rd Shloka.[5]. There is a range of type of materials mentioned in Ayurveda for the Agnikarma and the selection of particular material depend on its use. The important tool for Agnikarma is its 'Dahanopakarana' that means the material used for the Dahana karma and they are used in special conditions or sites in particular diseases. The particular choice of material depends upon wisdom and capability of physician. Charak, Sushruta and Vagbhatta mentioned a list of Dahanopakarana in reference to Agnikarma. They include Pippali, Aja shakrit, Godanta, Shara, Shalaka, Jambaushta, Dhatu, Madhu, Madhuchishta, Guda, Vasa, Ghrita, Taila, Yashtimadhu, Suchi, Varti, etc.[6]. References regarding Agnikarma in the management of Gridhrasi were found in various Samhitas. Charakacharya mentioned Agnikarma in Gridhrasi at the site of Antara-Kandara-Gulpha pradesha i.e., from mid of medial aspect to the mid of lateral aspect of lower limb, covering the dorsal surface at height of four Angulas from medial malleolus and lateral malleolus/Achilles tendon.[7].

Sushrutacharya mentioned Agnikarma chikitsa in diseases due to aggravated Vata located at Twak, Mamsa, Sira, Snayu, Sandhi and Asthi. Gridhrasi is one among this.

In *Chakradatta* and *Yogaratnakara*, we find direct reference of *Agnikarma* in *Gridhrasi* over *Kanishtika* anguli of pada (little toe).

The actual procedure of *Agnikarma* is performed in three steps i.e., *Purva karma*, *Pradhana karma* and *Paschata karma*.

In Purva karma, the exact sight of Agnikarma should be marked by siting the point of maximum tenderness or at the sites which are mentioned in the literature and cleaned with either Triphala Kashaya or Panchavalkala kashaya. Care to be taken that in Greeshma and Sharad rutu, Marma sthana, pittaja vikara, atisara, pramehi, baala, vruddha, garbhini, raktapitta, bhinna koshta, aneka-vruna-peedita, bhiru are to be avoided for the Agnikarma procedure.

During the Pradhana karma, the procedure of Agnikarma is done with the red-hot Shalaka at the marked sight in such a way that Samyaka daqdha lakshanas.[8]. like Anavgadha- vranata (wound not deeper seated), Taalphalavarnata (having the color of fruit of Taalphala i.e. blue-black in color, Borassus flabellifer). susamshitha vrana wound (i.e. morphology is maintained having no depression or elevation), Were to be observed. Sushruta mentions the clinical features of samyakdaqdha by ksharakarma in chapter S.Su.11 as relief from the disease, feeling of lightness in body and cessation of discharge, which are also applicable in Agnikarma context.

Other than these, there are separate specific features of *Agnikarma* which are as follows.[9].: - 1. *Twak Dagdha:*- The characteristics of *twak dagdha* is appearance of crackling sound, bad smell and contraction of local skin.

- 2. Mammsa Dagdha:- The characteristic of mamsa dagdha Vrana have appearance of Kapota varnata(Pigeon skin like discoloration).
- 3. *Sira-snayu Dagdha:* The characteristic of *sira-snayudaqdha* is appearance of black discoloration,

swelling of the wound and cessation of the discharge like blood.

4. Sandhi- Asthi Dagdha: The characteristic of sandhiasthidagdha is appearence of dryness, redness, hardness and fixity of the wound.

In Paschatakarma, the pulp of Kumari (Aloevera) should be applied over treated part and then powder of Yashtimadhu and Haridra should be sprinkled.[10]. Sushruta mentions different kinds of lepa for healing of Agnidagdha vrana i.e. Madhuchisthaadi lepa (wax, Manjistha. Mulethi. Lodhra, Raal, Raktachandan, Moorva. Take it in equal part and prepared as ghritapaak).[11]. Few common drugs applied after Agnikarma are- Yastimadhu, ghrita, shatadhautghrita, madhuyastyadi yoga, jaatyadighrita, Triphalakwath, dashmool kwath, rakta- chandansiddha ghrita, chandanadi pralepa, lepa of ghrita mixed with honey etc.

There are few work had been carried out on topic of *Agnikarma*. Many papers presented in many national and international seminars and very few research papers have been published. In this article an effort is taken to show the glimpse of research on *Agnikarma* in Gridhrasi.

OBJECTIVES:

The primary aim of this review is to assess and compile the evidence on the efficacy of Agnikarma in managing Gridhrasi (sciatica), addressing both subjective (e.g., pain reduction) and objective parameters (e.g., Straight Leg Raise (SLR) test outcomes). Secondary objectives include identifying gaps in research methodology and proposing standardized protocols for future studies.

METHODS:

Eligibility Criteria

Studies were eligible if they:

- Examined the use of Agnikarma as a treatment for Gridhrasi or Sciatica.
- Included subjective measures (e.g., pain, stiffness) and/or objective outcomes (e.g., SLR test).
- 3. Were available in English or translatable to English.

Information Sources

A systematic search was conducted in PubMed, Google Scholar, AYUSH Research Portal, and additional online databases. All studies published up to 30th September 2024 were considered without year restriction. Reference lists of selected articles were reviewed to capture additional studies.

Search Strategy

Search terms included "Agnikarma," "Gridhrasi," "Sciatica," "Ayurveda," and "pain management." Boolean operators and MeSH terms were adapted for each database to refine the search.

Selection of Sources of Evidence

Two reviewers independently screened titles and abstracts for inclusion based on relevance to Agnikarma and Gridhrasi. The full texts of potentially relevant articles were then reviewed to confirm eligibility. Discrepancies were resolved through discussion with a third reviewer.

Data Charting Process

A data extraction form was developed and piloted, and data were independently charted by the two reviewers. Collected data included study design, population characteristics, type of Agnikarma intervention, comparison groups (if any), subjective and objective outcomes, and follow-up duration. Charting discrepancies were reconciled through discussion.

Synthesis of Results

Data were synthesized narratively. Tables and thematic maps were used to summarize results, including:

- 1. Characteristics of Agnikarma interventions.
- Subjective outcomes (pain reduction, relief in stiffness, numbness).
- 3. Objective outcomes (SLR test results).

Results Presentation

A detailed summary is provided in tabular format for ease of comparison, addressing study design, participant characteristics, treatment protocols, and outcomes. Observed trends in pain relief, improved mobility, and SLR test results are highlighted.

Reporting Gaps and Limitations

This review identifies limitations in study design, treatment protocol consistency, and the lack of long-term follow-up data. Recommendations for standardizing protocols and including imaging assessments in future research are presented.

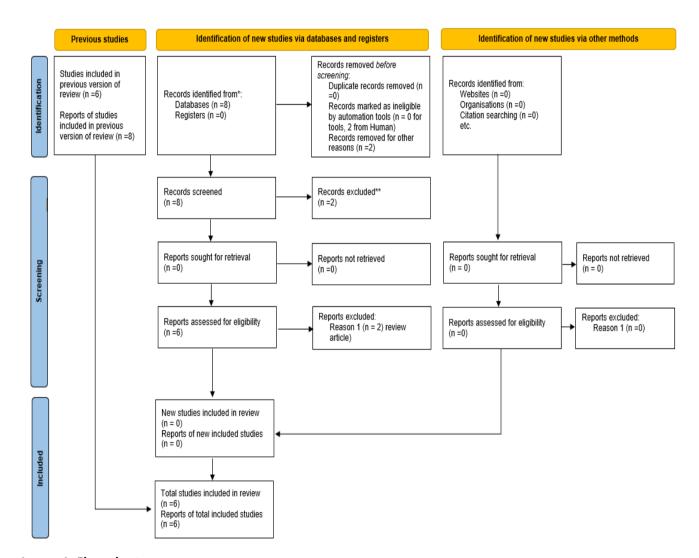


Image 1: Flow chart

Table No. 1: General Details of the study.

SI. No.	Authors	Research design	Gridhrasi type	No. of subjects	Sex
1	Yogita Bali, R	Efficacy of Agnikarma	Vataja	40	Male and
	Vijayasarathi,	over the			Female

	John Charrens -	Dadakanishtakanalitt				
	John Ebnezar and Padakanishtakam(little					
	В А	toe) and <i>Katibasti</i> In				
	Venkatesh.[12].	Gridhrasi: A				
		comparative Study.				
2	Anant Kumar V	Comparative clinical	Vataja	56	Male a	and
	Shekokar,	study of <i>Agnikarma</i>			Female.	
	Kanchan	and <i>Ajamodadi Vati</i> in				
	M.Borkar[13].	the management of				
		<i>Gridhrasi</i> w.s.r. to				
		Sciatica				
3	Abineet Raina,	Efficacy of Agnikarma	Vataja	30	Male a	and
	Vishal Khanna,	in the management of			Female.	
	Priya Puesh	Gridhrasi(Sciatica): A				
	Pargotra, Anjali	Clinical Study.				
	Sharma.[14].					
4	J. Vaneet Kumar,	A Comparative Clinical	Vataja	19	Male a	and
	Tukaram S.	Study of Siravedha and			Female.	
	Dudhamal,	<i>Agnikarma</i> in				
	Sanjay Kumar	management of				
	Gupta and	Gridhrasi				
	Vyasadev					
	Mahanta.[15].					
5	Chandreshwar	Role of <i>Agnikarma</i> in	Vataja	15	Male a	nd
	Prasad Sinha,	the Management of			Female.	
	Leeladhar Sahu	Gridhrasi W.S.R.				
	and N	Sciatica.				
	Parida.[16].					
6	Ashwini Fulzele,	Clinical Evaluation of	Vataja	30	Male a	nd
	Nilesh Ingle,	<i>Agnikarma</i> in			Female.	
	Amol Kadu, J.P.	Management of				
	Singh.[17].	Gridhrasi.				
				I	l	

Table no. 2: Inclusion and Exclusion criteria.

Sl. No.	X-Ray Findings	MRI Findings	On	Physical	Chronicity
			Examination	าร	

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1	1. Reduction in	SLR Positiv	/e 1 year.
	intervertebral		
	disc space.		
	2. Loss of lordosis.		
	3. Presence of		
	lumbar scoliosis.		
2	NA	SLR Positiv	e 0-2years.
3	NA	SLR Positiv	e 6 months and above.
4	NA	SLR Positiv	/e
5	AP/Lateral view.	SLR Positiv	/e At least of 6 months
	2. Routine hematological		
	tests.		
6	NA	SLR Positiv	/e

Table no. 4: - Procedure of Agnikarma.

SI. No.	Agnikarma Yantra	Type of <i>Agnikarma</i>	No. of <i>Bindu</i>	Site of <i>Bindu</i>
1	Panchalouha Shalaka	Bindu	4	Padakanishtaka Anguli
2	Loha dhatu Shalaka	Bindu	5-30	4 Angula(inches) above the Gulpha Sandhi
3	Panchaloha Shalaka	Bindu	5 bindu at each	Low back, mid buttock, mid-thigh, mid-calf, plantar aspect of little toe.
4	Panchadhatu Shalaka	Bindu	5-30 bindu at lumbo- sacral region and 5-15 at ankle region of Achilles tendon.	Lumbo-sacral region and ankle region of Achilles tendon.
5	Panchadhatu Shalaka			Along the course of Sciatic nerve innervations from its origin point up to toe.
6	Panchalauha shalaka	Bindu	Depends on the path and intensity of the pain.	At the site of the maximum pain.

Table No. 5: - Post Operative method and Results

Sl. No.	No. of Sittings/No. of days	Post op	Result
1	3 sittings	1. A mixture of	Pain was totally relieved in 80% of
		<i>Goghrita</i> and	cases and moderate degree in
		<i>Makshika</i> was	20% cases.
		applied.	In 95% of cases SLR become
		2. Sterile bandage	negative.
		was applied.	
		3. Bed rest for half	
		an hour.	
2	2 sittings	1. Kumari swarasa is	1. 64.70% of Markedly
		applied.	Improved.
		After washing the kumarhi	2. 35.30% of 25-50% relief
		swarasa, Avachurnana of	in the complaints.
		Yashtimadhu churna was	
		done.	
3	Not mentioned	1. Pulp of aloevera is	1. Ruk-88.23%
		applied.	2. Toda-89.47%
		2. Powder of	3. Sthambha-100%
		<i>Yashtimadhu</i> and	4. Spandana- 66.66%
		Haridra was	5. Tingling sensation-
		sprinkled.	83.33%
			6. Numbness-73.33%
			7. SLR test-0.097%.
4	2 sittings	<i>Haridra</i> powder was	1. 68.42% patient shows
		sprinkled on wounds and	marked improvement
		advised to apply <i>Madhu</i>	(75-99% relief).
		and Ghrita from next day of	2. 21.05% had complete
		Agnikarma.	relief.
5	3 sittings.	Aloevera fresh leaves and	1. Ruk- 68.2% relief.
		<i>Madhuyashti</i> powder used	2. <i>Toda-</i> 60.4% relief.
		during the procedure.	3. Stambha- 53.4% relief.
			4. Spandana- 78.4% relief.
			5. Numbness- 59% relief.
			6. SLR test- 38.1% relief.
6	3 sitting	Pulp of aloevera was	1. Ruk:- 88.23% relief.
		applied over treated part	2. Toda:- 89.47% relief.

Upanishad N. Upadhye, Vaidya Vasant Patil. Efficacy of *Agnikarma* in the management of *Gridhrasi* (sciatica)- A Scoping review. Jour. of Ayurveda & Holistic Medicine, Vol.-XII, Issue-X (Oct. 2024).

and then powder of	3. Sthambha:- 100% relief.
Yashtimadhu and Haridra	
was sprinkled.	

DISCUSSION:

The studies collectively underscore Agnikarma's potential as a primary treatment for Gridhrasi, effectively addressing Vata and Kapha-related symptoms through the use of **Ushna** (hot) **Guna** to counteract **Sheeta** (cold) **Guna** in the pathology of Gridhrasi. Agnikarma, by generating local heat, may help break the Avarana (blockage) created by Kapha, reducing symptoms like **stiffness**, **heaviness**, **and numbness** associated with the condition.

Mechanism of Action in Ayurvedic Context:

 Gridhrasi, caused by Vata and Kapha Dosha vitiation, benefits from the heat application in Agnikarma, which may relieve symptoms by reducing the Kapha dosha's obstruction and pacifying Vata through the thermal properties of Agni. This Ushna property likely helps alleviate stiffness and improve circulation, thereby enhancing mobility.

Comparative Efficacy of Agnikarma:

 Among the comparative studies, Agnikarma alone or in combination with other Ayurvedic interventions showed greater improvement in pain and functional symptoms than when it was used singularly. This suggests that combined or sequential use of Agnikarma may offer amplified therapeutic benefits for patients with sciatic symptoms.

Recommendations for Future Research:

- Incorporate Advanced Imaging Techniques: Including MRI findings could offer insights into structural changes following Agnikarma, providing objective support for its therapeutic impact.
- Establish Standardized Protocols: Uniformity in the number of sittings, type of

Shalaka, and bindu applications would enhance study comparability and improve understanding of Agnikarma's optimal application.

- Explore Long-term Outcomes: Follow-up studies to assess the durability of symptom relief are needed, which will also clarify the recurrence rates post-treatment.
- Expand Sample Size and Diversity: Larger, diverse sample sizes with comprehensive demographic data can improve generalizability and identify specific population groups that may benefit more from Agnikarma.

Subjective Parameters: -

The main subjective parameter included in the studies are Pain, in all the studies;

Ruk, *Toda, Sthambha, Spandana* are included and Numbness in 1 study;

Ruk, Toda and Sthambha in 1 study;

Ruk, Toda, Sthambha, Tingling sensation, Numbness in 1 study.

Objective Parameters: -

SLR Test is considered as an objective parameter in all the studies. Two studies included the X-Ray and none of them included MRI findings.

Research Gaps

1. Lack of Consistent Objective Parameters:

 While the Straight Leg Raise (SLR) test is included as an objective parameter across studies, more advanced imaging assessments (like MRI findings) are largely absent, with only two studies including Xray results. This gap limits a thorough understanding of structural changes in Gridhrasi (Sciatica) management with Agnikarma therapy.

2. Limited Diversity in Study Design:

 Of the six studies reviewed, only three were comparative, while the others focused solely on Agnikarma's role in Gridhrasi management. Comparative studies with other treatment modalities (such as conventional therapies or other Ayurvedic treatments) are needed to contextualize Agnikarma's efficacy.

3. Inconsistent Treatment Protocols:

 There is variation in the number of sittings, type of post-operative care, and specific applications (e.g., different types of Shalakas and bindu numbers).
 Standardized treatment protocols are needed to draw consistent conclusions about the optimal application of Agnikarma.

4. Insufficient Reporting on Long-term Outcomes:

 Most studies focus on short-term results, such as immediate or moderately immediate pain relief. There is a lack of data on long-term efficacy and recurrence rates, which is essential to evaluate the lasting impact of Agnikarma on Gridhrasi.

5. Limited Sample Size:

 Some studies, such as those with only 15 to 30 participants, have relatively small sample sizes, which may limit the generalizability of the findings. Larger sample sizes are required to increase confidence in the results and ensure statistical significance.

Interpretation of Results

The available studies suggest that **Agnikarma is effective in managing symptoms of Gridhrasi**, particularly when using Panchadhatu Shalaka for

targeted treatment. The following outcomes were observed:

- Pain Relief: Across all studies, significant improvement in pain (ruk) was reported, with relief percentages often reaching above 80%.
- Improvement in Functional Limitations:
 Parameters such as stiffness (sthambha), tingling sensation, and numbness showed considerable reduction post-treatment in multiple studies. This indicates that Agnikarma is not only effective for pain management but also improves functional mobility and neurological symptoms associated with Gridhrasi.
- SLR Test Improvements: The reduction in positive SLR test results in nearly all studies implies enhanced flexibility and reduced sciatic nerve tension, supporting the effectiveness of Agnikarma in alleviating sciatic symptoms.
- Post-operative Relief Consistency: In threesitting protocols, a trend of significant relief in pain and other symptoms was observed, with post-operative methods (such as the application of ghee, aloe vera, and sterile bandages) potentially contributing to sustained improvement.

CONCLUSION:

In conclusion, while the reviewed studies present Agnikarma as a promising treatment for Gridhrasi, addressing the identified research gaps could strengthen the evidence base, offering more robust guidelines for clinical application and better patient outcomes.

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